

APPENDIX B

STATEMENT OF WORK
for
REMEDIAL DESIGN/REMEDIAL ACTION
MIG/DEWANE LANDFILL SUPERFUND SITE
(Boone County, Illinois)

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1.0 INTRODUCTION

In accordance with the March 30, 2000 Record of Decision ("ROD") for the MIG/DeWane Landfill Site ("Site"), the Potentially Responsible Parties ("PRPs") are required to implement the selected remedial action alternative at the Site. This remedial action alternative was selected by the Illinois Environmental Protection Agency ("Illinois EPA"), with the concurrence of the United States Environmental Protection Agency ("U.S. EPA") based on data gathered during the Remedial Investigation ("RI") and the Focused Feasibility Study ("FFS") for the Site. This Statement of Work ("SOW") provides a framework for implementation of the remedial action ("RA"). All work to be performed by the PRPs pursuant to the attached RD/RA Consent Decree ("CD") shall be under the direction and supervision of a qualified professional engineer registered in Illinois, a registered/certified geologist, or other person qualified to work in hazardous material management projects.

1.1 Purpose

The selected RA is designed to protect human health and the environment in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA") of 1980, as amended by the Superfund Amendments and Reauthorization Act ("SARA") of 1986, and the National Oil and Hazardous Substance Pollution Contingency Plan ("NCP"). The purpose of this SOW is to set forth requirements for the remedial design ("RD") of the RA, as well as the final RA alternative set forth in the ROD for the Site, which was signed by the Illinois EPA on March 30, 2000, with concurrence by the U.S. EPA Region V on March 31, 2000. The PRPs' contractors shall follow the ROD, the SOW, the approved RD Work Plan, U.S. EPA Superfund Guidance, and other applicable guidance provided by U.S. EPA for conducting an RD/RA.

1.2 Site Description

The Site, also known as Boone Landfill, Bonus Landfill, or Kennedy Landfill, is located in Boone County, Illinois approximately 0.25 miles east of the City of Belvidere and 0.5 miles north of U.S. Business Route 20. The Site is located primarily in the south half of the southeastern quarter of Section 30, Township 44 North, Range 4 East. The Site is bounded on the north by the Chicago and Northwestern railroad tracks, and the Commonwealth Edison right-of-way. North of the railroad tracks is an agricultural field that extends to the Kishwaukee River. Agricultural and commercial properties are located to the east and south of the Site. A soil borrow pit, used to provide soil for the Site's interim cap, is immediately adjacent to the west of the Site. Further west of the Site is a residential housing development known as the Wycliffe Estates subdivision.

The Site occupies an area of approximately 47+ acres and rises to a height of approximately 50 to 55 feet above the surrounding terrain. The Site consists of a landfill and leachate surface impoundment. The surface impoundment was constructed to receive leachate from the eastern area of landfilling operations through a gravity flow leachate collection system. A landfill gas extraction system composed of two vents for passive gas removal had been installed on the crest of the Site prior to the Site being abandoned in 1988 by M.I.G. Investments, Inc.

1.3 Site History

The Site operated as a landfill from 1969 until 1988. The Site contains a municipal landfill that received residential, municipal, commercial and industrial wastes. The Site is classified as a Type I landfill. A Type I landfill is a co-disposal facility where hazardous wastes were disposed of with municipal solid wastes. The landfill activities (or lack thereof) that lead to the current problems at the Site include the disposal of various types of wastes as well as the improper covering of the landfill wastes, and improper Site contouring for surface water drainage.

From at least 1968 to 1983, the Site property was owned by Mr. Raymond DeWane and Ms. Jean Farina (and, until his death, Mr. John L. DeWane). In 1983, the property ownership was transferred to a Trust. In 1991, ownership of the Site property was transferred to L.A.E., Inc. At the time, Raymond E. DeWane and Jean A. Farina were the sole L.A.E. shareholders.

From 1969 to 1988, the Site property was leased by various individuals and companies, including: Mr. Jerome Kennedy, Mr. J. D. Mollendorf, Boone Landfill Inc., Boone Disposal Co., Bonus Landfill Co., Rockford Disposal Service, Inc., National Disposal Service, Inc., Browning-Ferris Industries of Rockford, Inc., and M.I.G. Investments, Inc. During the 1969 to 1988 time period, the Site was operated as a landfill by the above-listed entities.

In February 1969, the landfill was registered with the State of Illinois and disposal operations began in the area of the former gravel pit. The State of Illinois landfill permits required the placement of a five-foot compacted clay liner across the bottom of the pit. During 1975, a gravitational flow leachate collection system was installed in the area that now comprises an area that approximates the eastern most 1/3 of the Site. The system was designed to allow for leachate to be collected and drained through gravitational flow into an on-Site clay-lined leachate collection surface impoundment, which measured approximately 130 ft., by 130 ft., by 10 ft. deep.

In June 1988, a court-ordered injunction was issued against M.I.G. Investments for violations of its operating permit. Landfill operations ceased at the Site in June 1988. In July 1988, the Site was abandoned. The Site did not have adequate cover and did not meet other State of Illinois regulations.

On August 30, 1990, the Site was placed on the National Priorities List ("NPL"). On October 29, 1990 the U.S. EPA and a previous landfill operator, Browning-Ferris Industries of Illinois, Inc. ("BFI") entered into an Administrative Order on Consent ("AOC1") for BFI to maintain the leachate surface impoundment. The impoundment maintenance included reducing leachate levels and repairing the impoundment berms. Prior to AOC1, the Illinois EPA and U.S. EPA, on more than one occasion, determined it was necessary to hire contractors for emergency removal actions to reduce the leachate levels within the impoundment, to prevent overflowing.

On March 29, 1991, various PRPs, the Illinois EPA and the U.S. EPA entered into another Administrative Order on Consent ("AOC2"). Among other things, AOC2 required the PRP signatories to undertake an RI/FS for the entire Site.

Interim remedial actions were undertaken during 1991 and early 1993, to stabilize the Site. These actions included the remediating of numerous leachate flows by the placement of an interim landfill cap. Additional interim remedial actions also occurred.

The RI commenced during mid-1993 and the final RI Report was completed in July 1997. In February 1999, the final FFS that discusses and compares the potential clean-up remedial alternatives was completed. Early in 1999 gas probes were installed along the western soil borrow pit area boundary. In late April and early May 1999, as an emergency action, extraction wells and an interceptor trench were installed and activated to remove landfill gas migrating off-Site. Also, gas and groundwater sampling probes were installed in the Wycliffe Estates subdivision during early 1999. Gas extraction system and gas probe sampling has been occurring since 1999. In March 2000 the ROD was signed.

2.0 DESCRIPTION OF THE REMEDIAL ACTION/PERFORMANCE STANDARDS

The selected remedial alternative for the RD/RA was chosen by the Illinois EPA with the concurrence of the U.S. EPA after a detailed analysis of the alternatives included in the FFS, and a review of public comments. The RD Contractor(s) shall design the RA to meet the performance standards and specifications set forth in the ROD, CD, and this SOW. The RD shall include performance standards and specification such as cleanup standards, standards of control, quality criteria, and other substantive requirements, criteria, or limitations including all applicable or relevant and appropriate requirements ("ARARs") set forth in the ROD, CD, and this SOW.

The RA Contractor(s) shall implement the RA as set for in the ROD, CD, and the RA Work Plan. The RA Contractor(s) shall submit a RA Work Plan that includes a detailed description of the remediation and construction activities. The RA Work Plan shall include a project schedule for each major activity and submission of deliverables generated during the RA. The RA Contractor(s) shall submit a RA Work Plan in accordance with Paragraph 63 of the CD and this SOW.

The RD/RA will address three major areas of concern: leachate; groundwater; and landfill gas. The function of this RA is to control the Site as a source of groundwater contamination, to remediate groundwater, reduce the risks associated with exposure to contaminated materials, to prevent untreated leachate from leaving the Site, and to intercept landfill gases migrating from the Site. The three major areas of concern will be remediated through the installation and/ or implementation of at a minimum the following: (1) a landfill gas management program; (2) institutional controls, access restrictions and deed restrictions; (3) storm water management/surface water diversion system; (4) closure of the leachate surface impoundment; (5) leachate collection and management system; (6) groundwater remediation and management (through natural attenuation); and (7) a multi-layer landfill cap.

2.1 Landfill Gas Management Program

The landfill gas management program includes a landfill gas collection and treatment system with both passive and active components, and long-term gas monitoring. At present there exist 2 passive

gas vents located within the landfill area, a gas interceptor and collection trench located immediately west of the landfill area, 6 gas extraction wells along the western edge of the soil borrow pit, and a gas flare system. An additional 15 passive gas vents, or an alternate number of vents approved by the Illinois EPA based on a technical demonstration as part of the RD, will be installed within the interior of the landfill area. Six gas probes have been installed within the landfill area and another 12 have been installed in areas to the west of the Site. A plan for continuing operation of the existing active gas management system components will be evaluated as part of the RD.

The passive gas vents within the landfill area, if necessary, can be upgraded to an active system. Additional gas control measures as described in the FFS and included in the ROD, will be installed as needed. The landfill gas collection system will be designed to meet the applicable landfill standards pursuant to 35 Illinois Administrative Code ("IAC") Part 811, and as is determined to be necessary to protect human health and the environment. The present landfill gas monitoring system will be enhanced. Landfill gas management will meet all ARARs. The RA Contractor(s) will contain and remediate gases generated from the Site by the construction and operation of an active and passive gas collection system and monitoring program, as per the ROD, this SOW, and pursuant to ARARs.

2.2 Institutional Controls, Access Restrictions and Deed Restrictions

Institutional controls including site security fences, zoning restrictions, deed restrictions/restricted covenants, and adherence to local ordinances restricting groundwater use will be implemented to restrict access to the Site, especially the contaminated groundwater, leachate, and landfill gas and remedial control systems. The RA Contractor(s) shall install and maintain a fence at the Site to prevent access and vandalism to the Site. Fencing of the Site shall consist of a chain-link fence around the perimeter which is a minimum six-feet high with a minimum three-strand barbed wire. Warning signs shall be posted at 200-foot intervals along the fence and at all gates. The warning signs shall advise that the area is hazardous due to chemicals in the soils, leachate and groundwater which pose a risk to public health through direct contact with the soils, leachate and groundwater. The signs shall also provide a telephone number to call for further information. The fence (including signs) shall be completed within 30 days of the entry of the CD.

Deed restrictions shall be prepared and recorded against the Site and the adjacent soil borrow pit prohibiting on-Site groundwater use, construction of buildings and its related activities, and any drilling, excavating or other soil intrusive activities by owners or occupants of the Site property except for the purposes of RD/RA, sampling and monitoring, and constructing and maintaining components of the selected remedy. Within 15 days after the entry of the Consent Decree, Settling Defendants/PRPs shall execute and record with the Boone County recorder the restrictive covenant/deed restrictions in an appendix of the CD.

The areas to the north, northwest and west of the Site will be designated as a Groundwater Management Zone ("GMZ"). The area to the north of the Site is the agricultural field located between the landfill and the Kishwaukee River. The area to the west, northwest includes the soil borrow pit area, the area containing the Wycliffe subdivision, and the agricultural field/land north to

the Kishwaukee River. The RA Contractor(s) shall undertake the groundwater containment by the GMZ and groundwater remediation by Monitored Natural Attenuation. However, if Monitored Natural Attenuation is not successful within the GMZ, then the contingency for additional leachate removal may be implemented, or in-situ remedial alternatives may be implemented as approved by the Illinois EPA. The RA Contractor(s) shall remediate the contaminated groundwater as per the ROD, CD, this SOW, and pursuant to ARARs. In addition to institutional controls, access restrictions, and deed restrictions, local zoning and health department ordinances will be enforced to prevent access to contaminated groundwater.

2.3 Storm Water Management/Surface Water Diversion System

Storm water controls will be constructed, such as grades, terraces, gravel or rip/rap lined drainage ditches and berms as part of a surface water diversion system to prevent landfill cover erosion, surface water ponding, and restrict precipitation infiltration into the landfill area. This system will include water drainage ditches around the toe of the landfill area, storm water retention pond(s) as needed, and corresponding water discharge routes. Erosion control measures and structures will be implemented where necessary. Storm water management will meet all ARARs, and state and federal regulations. The RA Contractor(s) shall install a storm water/surface water run-off, diversion and drainage system for the Site as per the ROD, CD, this SOW, and pursuant to ARARs. Erosion control measures and structures will be implemented where necessary.

2.4 Closure of Leachate Surface Impoundment

All surface impoundment liquids and a minimum of two feet of sediments will be removed. The liquids will be treated and disposed of in an approved manner. The sediments will be disposed of in the Site or in an otherwise approved manner. The empty surface impoundment will then be filled with clean soil. A leachate collection and management system will be installed to replace the leachate surface impoundment. The RA Contractor(s) will close the on-Site leachate surface impoundment by removing liquids and sediments as per the ROD, CD, this SOW, and pursuant to ARARs.

2.5 Leachate Collection and Management

The leachate collection system will include the originally installed gravity controlled system with a collection tank to replace the surface impoundment, and collection trenches to be located on the Site in the area of major leachate seeps. The leachate collection system will mitigate leachate surface seeps and reduce hydrostatic pressure within the Site, thus reducing leachate migration within the Site to groundwater. The localized leachate collection and drainage trenches will use a system of permeable bed layers, or passive trenches to be installed in major leachate seep areas, as determined necessary. Vertical leachate extraction wells, or other contingent leachate management options, as discussed below, will be installed in areas where there is a need based on the internal hydrostatic pressure measurements and engineering determinations.

Vertical leachate collection wells, if necessary, will be operated under gravity or artesian conditions for a period of time necessary to reduce localized head buildups to sufficient levels that minimize and stop seeps. If, however, leachate must be removed in a shorter time frame than can be achieved by gravity operation to mitigate present and/or future seeps, active interior leachate extraction must be implemented as a contingent remedial action measure to address groundwater contamination, surface water regulations or other ARARs, then vertical leachate extraction wells will be fitted with submersible pumps to perform active extraction for a limited duration until the remedial objectives are met. The collected leachate will be treated on-Site or transported off-Site for treatment and disposal. Additional possible contingent leachate removal options include the following:

1. A perimeter trench system can be constructed along key lengths proximate to identified areas of leachate accumulation;
2. Horizontal well laterals can be installed along the base of the refuse burial area;
3. Passive gas vent wells located in areas of leachate accumulation can be retrofitted to operate as leachate extraction wells; and
4. Any combination of the three leachate removal alternatives described above can be implemented.

The additional leachate removal options will be used if either of the following scenarios occurs: (1) design analysis based on pre-design leachate monitoring data indicates that leachate removal must be accompanied in a shorter time frame to mitigate seep conditions; or (2) in the event that the corresponding trigger mechanism criteria described in the Groundwater Monitoring Plan are exceeded. Additional leachate removal details are included in the ROD and FFS documents.

The extent of passive leachate collection trenches, permeable interceptor beds, or other contingent leachate removal components as described in the FFS will be established as part of the RD using additional data obtained during pre-design and sampling investigation and study. An engineering evaluation of future seep potential and a leachate head drawdown analysis will occur. The extent of these leachate removal components of the RA will be sufficient to collect and convey leachate that flows to the trench, bed, or other leachate management component, mitigate seep potential dissipate high leachate heads, and work effectively with the landfill cap to meet the RA objectives.

The leachate removal and management program will meet all ARARs. The RA Contractor(s) shall install a leachate collection system such that leachate shall be pumped/drained from the landfill and treated. The leachate collection and monitoring system shall comply with the ROD, CD, this SOW, and pursuant to ARARs. The leachate collection and monitoring will occur as containment to minimize the landfill contaminant migration to groundwater, surface water, soil, and air.

2.6 Groundwater Remediation and Management

A groundwater management and monitoring program will be implemented consistent with the requirements of the ROD. The remedy as included in the ROD does not require the implementation of an active groundwater remedy because the relatively low contamination levels of groundwater are expected to be remediated through the use of Monitored Natural Attenuation and other remediation components for the Site. The monitoring program will be consistent with 35 IAC 620.505 and 620.510. A groundwater management zone as described in 35 IAC Part 620 shall be established for areas undergoing remediation. The related groundwater management components include capping the landfill area, reducing gas pressure, and the removal of leachate at the contaminant source in the Site. Also, long-term groundwater monitoring will occur both on-Site and off-Site. If groundwater monitoring determines that Monitored Natural Attenuation is not effective, then the contingency for additional leachate removal may be implemented, or in-situ remedial alternatives may be implemented as approved by the Illinois EPA. Long-term monitoring will provide sampling data at regular intervals.

Applicable U.S. EPA Monitored Natural Attenuation requirements and guidance will be met or otherwise additional technologies will be implemented to remediate groundwater to water quality criteria for Class I aquifers.

Pursuant to the requirements of 35 IAC 724.195, a groundwater point of compliance shall be established at the Site boundary. Groundwater remediation and management will meet all ARARs. A long-term groundwater monitoring program will be established and maintained. After the RA is implemented, an assessment or review of the RA will be completed every five years, in the form of a Five Year Review.

Groundwater monitoring will include annual monitoring for the parameters in Appendix I at 35 IAC 724.195 for the first five years, and as defined in the ROD, quarterly for seven VOC chemicals of concern (i.e., benzene, 1,1-dichloroethylene, 1,2-dichloropropane, methylene chloride, tetrachloroethylene, trichloroethylene, and vinyl chloride), target inorganic compounds (i.e., antimony, arsenic, chromium, iron, lead, manganese, mercury, nickel, and boron), and relevant water quality and natural attenuation evaluation parameters following completion of the RA. The evaluation or "indicator" parameters will depend on the attenuation mechanisms that are being relied on to cleanup the groundwater. The groundwater monitoring program details will be refined during the RD stage, as will criteria acceptable to Illinois EPA to adjust the monitoring program. The RA Contractor(s) shall implement long-term groundwater monitoring per the ROD, CD, this SOW, and pursuant to ARARs. The long-term groundwater monitoring program will provide information on natural attenuation's progress towards achieving the clean-up objectives by providing sampling data on contaminant migration within the groundwater.

2.7 Landfill Cover/Cap

A multi-component landfill cap and cover system will be constructed and maintained to meet the required landfill standards and related ARARs (i.e., 35 IAC Part 811). The cap will meet the CERCLA requirements for RCRA hazardous waste disposed of in a municipal landfill. The cap will cover the entire landfill. The landfill vegetative cover will be maintained to the maximum extent possible before, during, and after construction. The cap will meet all ARARs.

The landfill cap will consist of a vegetative layer of at minimum 6 inches in depth over the entire landfill cap. Below and adjacent to the vegetative layer will be the landfill protective layer. Unless an alternative thickness is approved by Illinois EPA, the protective layer on the crest of the landfill will be 24 inches thick, tapering to a minimum of 18 inches thick at the toe of the landfill area side slopes. Unless an alternative thickness is approved by Illinois EPA, the protective soil layer and vegetative layer on the crest or top of the landfill area (approx. 19 acres) will have a minimum combined total depth of 30 inches. The 30 inch cover depth will then gradually taper to a combined minimum 24 inch total depth of the soil protective layer and vegetative cover at the landfill area slope toe. The tapering and reduction in the depth of the protective layer is due to engineering problems associated with the closeness of the landfill cap to the property boundaries and physical barriers such as railroad tracks and buried fiber optic cables. With the approval of the Illinois EPA, existing soils on site that meet project specifications (which will define acceptable chemical and physical parameters) may be re-used for the vegetative and protective layers.

Below and adjacent to the soil protective layer will be a geosynthetic drainage layer consisting of a geonet and geotextile combination, or alternative drainage materials demonstrated in the RD by the PRPs to be of equivalent performance subject to the approval of the Illinois EPA. Next, below and adjacent to the drainage layer will be the low permeability layer, which will be composed of a Geosynthetic-Clay Layer ("GCL"), or a geomembrane liner material demonstrated in the RD to be of equivalent performance subject to the approval of the Illinois EPA. Any technical equivalency demonstration submitted to Illinois EPA must show compliance with 35 IAC Part 811 and address technical aspects such as hydraulic barrier performance, slope stability, long-term durability, freeze-thaw behavior, and constructability. If a GCL is used, the GCL will consist of a combination bentonite/clay layer between a geosynthetic flexible membrane and a geotextile layer.

Below and adjacent to the geosynthetic low permeability layer will be the subsoil/grading layer for the landfill cap. A compacted soil layer, with a minimum depth of 12 inches (after compaction) will be placed and compacted to provide a foundation for the other cap components and to protect the low permeability layer from the landfill contents, and possible structural subsidence. With the approval of Illinois EPA, existing soils on site that meet project specifications (which will define acceptable chemical and physical parameters) may be used for this foundation layer.

The RA Contractor(s) shall design and construct a landfill cover that meets or exceeds the remedy as stated in the ROD, this SOW, and pursuant to ARARs. The landfill cover shall include various component layers, including a vegetated layer as specified by the ROD, this SOW, and pursuant to and ARARs. Construction of the cover/cap system will minimize the infiltration of precipitation into

the landfill, thus reducing the generation of leachate, landfill gases, and the migration of contaminants to groundwater, soil, and air. The RA Contractor(s) shall conduct landfill gas, groundwater and leachate remediation and/or removal and monitoring, as well as, routine monitoring inspections and operation maintenance of the landfill cover as part of the long-term requirements to be established in the RA and O&M as required pursuant to the ROD, CD, this SOW, and ARARs.

3.0 OPERATION & MAINTENANCE

An appropriate program for long-term Operation and Maintenance ("O&M") of the Site and all components for the RA will be developed and implemented. The PRPs will be required to develop and draft an Operation and Maintenance Plan ("O&M Plan") that covers all aspects of the remedial action including the landfill cap, and gas and groundwater monitoring and remediation.

The draft O&M Plan will be revised once the remedial action is completely built and the as-built plans are available. The list of general requirements for the Site O&M Plan is included below in Section 7.

4.0 SCOPE OF REMEDIAL ACTION PROGRAM

Any existing or potential threats associated with direct contact with wastes or contaminant migration through any media pathway will be effectively remediated. Each component of the remedial action program will be performed as described in the RD/RA Work Plans. Due to the wide variety of types of work to be performed, the components of this program may be performed by separate remedial contractors working independent of each other but under the direction of the Site Supervising Contractor.

5.0 SCHEDULE

Preliminary schedules for remedial design and remedial action will be submitted with the RD/RA Work Plans and will serve as a framework for manpower and budget planning for the remedial program. The schedules will be structured to allow for timely design, construction, and operation of the remedial components of this program.

The schedules will provide estimates of the time required to complete various tasks. Some timing and scheduling requirements are prescribed by the CD. Other timing requirements, such as for phased design submittals and remedial action planning and completion documents, will be developed as part of the RD/RA Work Plans.

6.0 REMEDIAL DESIGN TASKS

The RD Contractor(s) shall design the RA to meet the performance standards and specifications set forth in the ROD and this SOW. Performance standards shall include cleanup standards, standards of control, quality criteria, and other substantive requirements, criteria, or limitations including all ARARs set forth in the ROD and SOW.

The components of the selected remedial design activity are as follows:

- Task 1 - Contractor Procurement
- Task 2 - Project Planning
- Task 3 - Community Relations
- Task 4 - Pre-Design Work Plan
- Task 5 - Pre-Design Field Work
- Task 6 - Sample Analysis/Validation
- Task 7 - Data Evaluation
- Task 8 - Remedial Design
- Task 9 - Engineering Services During Design and Construction

6.1 Task 1 - Contractor Procurement

Upon or before the entry of the CD, the PRPs shall complete the necessary steps and follow the appropriate procedures to procure the services of a contractor to conduct the RD activities for the Site. The PRPs shall direct the RD Contractor(s) to begin planning the specific activities that will need to be conducted as part of the RD.

6.2 Task 2 - Project Planning

This task consists of meeting preparation, an initial meeting, an on-site visit and meeting, and preparation of meeting minutes to document relevant activities.

6.2.1 Meeting Preparation

The PRPs or their consultants will prepare preliminary information and appropriate discussion agenda items prior to each meeting between the PRPs and the Illinois EPA.

6.2.2 Initial Meeting

An initial meeting will be held in Springfield, Illinois, or any location to which the Illinois EPA and the PRPs agree, to discuss the overall project plans and scope of work for each major component of the RD program. The initial meeting and Site inspection meeting will be combined unless it is agreed by the PRPs and Illinois EPA to hold separate meetings.

6.2.3 Site Inspection

An on-Site inspection and meeting will be conducted and include a Site inspection of the areas to be affected by major remedial components. The on-Site meeting will include the project managers (or assignees) from the PRPs, the RD Contractor(s), and the Illinois EPA. The Site visit during the project-planning phase should assist the RD Contractor(s) in developing a conceptual understanding of the Site in order to plan for the RD.

The PRPs and/or RD Contractor(s) will have a Site safety plan in place during the on-Site inspection and meeting. The assumption has been made that Level D protection will be utilized during the Site inspection.

6.2.4 Preparation of Minutes

During the initial and subsequent on-Site meeting, the significant points of discussion will be recorded. Meeting minutes will be distributed to all attendees. Action item schedules will be discussed between key remedial design team members and other project personnel.

6.2.5 Background Document Review

As part of the planning effort, the RD Contractor(s) shall review the following background information to familiarize itself with the Site:

1. Final RI Report from the RI/FS for the Site;
2. FFS Report for the Site;
3. the ROD for the Site; and
4. this SOW.

6.2.6 Monthly Progress Reports

The PRPs shall submit to the Illinois EPA Monthly Progress Reports that, at a minimum, shall contain information on the following items:

1. Status of work and the progress to date;
2. Percentage of the work completed and the status of the schedule;
3. Difficulties encountered and corrective actions to be taken;
4. The activities in progress;
5. Activities planned for the next reporting period; and
6. Any changes in key personnel.

6.3 Task 3 - Community Relations

The Illinois EPA will be primarily responsible for community relations activities at the Site. The community relations program will be integrated closely with all remedial action activities to ensure community understanding of actions being taken and to obtain community input during the RD.

The PRPs will provide appropriate assistance to the Illinois EPA in its development and implementation of the community relations program. Illinois EPA-led community relations activities for the Site will include, but may not be limited to, the following:

1. Preparation of a Community Relations Plan ("CRP") based on interviews with community representatives and leaders by state agency staff. The CRP will describe the types of information to be provided to the public and outline the opportunities for

- community comment and input during the RD. Deliverables, schedule, staffing, and budget requirements will be included in the CRP;
2. Establishment and maintenance of a community information repository(s), one of which will house a copy of the administrative record;
 3. Preparation and dissemination of news releases, fact sheets, slide shows, exhibits, and other audio-visual materials designed to apprise the community of current or proposed activities;
 4. Development and upkeep of a mailing list that includes nearby and interested residents, public interest groups, and elected officials;
 5. Arrangements of briefings, press conferences, workshops, and public and other informal meetings;
 6. Analysis of community attitudes toward the proposed RD and RA;
 7. Assessment of the successes and failures of the community relations program to date; and
 8. Preparation of reports and participation in public meetings, project review meetings, and other meetings as necessary for the normal progress of the work.

Deliverables and the schedule for submittal will be identified in the CRP. The CRP will be revised or amended as is determined to be necessary by the Illinois EPA.

6.4 Task 4 - Pre-Design Work Plan

The RD Contractor(s) shall prepare and submit a Pre-Design Work Plan to provide information necessary to fully implement the remedial design. The Pre-Design Work Plan shall include, at a minimum, a Remedial Design Quality Assurance Project Plan ("RD-QAPP"), a Health and Safety Plan ("HSP"), and a Field Sampling and Analysis Plan ("FSAP"). The Pre-Design Work Plan may include all of the requirements of the plans as identified in Section 6.8 and may be periodically amended to complete the remainder of the RD and RA.

6.4.1 Remedial Design Quality Assurance Project Plan

An RD-QAPP will be developed by the RD Contractor(s) and approved by the Illinois EPA as part of the Pre-Design Work Plan. The RD-QAPP will be prepared in a phased manner involving review and incorporation of the Illinois EPA comments. The RD-QAPP document will be an independent document specific for the project and will include all sections described in Section 7 of this SOW. The RD Contractor(s) shall prepare the RD-QAPP to address the types of investigations and monitoring to be conducted during the pre-design and design phases. The RD-QAPP should include a project description, a project organization chart illustrating the lines of responsibility of the personnel involved in the sampling phase of the project, quality assurance objectives for data such as the required precision and accuracy, completeness of data, representativeness of data, comparability of data, and the intended use of collected data, sample custody procedures during sample collection, in the laboratory, and as part of the final evidence files, the type and frequency of calibration procedures for field and laboratory instruments, internal quality control checks, quality assurance performance audits and system audits, preventive maintenance procedures and schedule and

corrective action procedures for field and laboratory instruments, specific procedures to assess data precision, representativeness, comparability, accuracy, and completeness of specific measurement parameters, and data documentation and tracking procedures. Standard operating procedures for QA/QC that have been established by U. S. EPA will be referenced and not duplicated in the RD-QAPP.

For each of the major components of the program, it will be necessary to develop Site-specific protocols for each particular activity. Protocols to be developed and analyzed for each major component that will affect the RD-QAPP will include air sampling (both on and off-site) for landfill gas and particulates, and groundwater and leachate sampling and monitoring. For all types of sampling, the sample collection methods, analytical schemes, and frequency of testing will be developed.

Air sampling protocols will include landfill gas and particulate sampling before, during, and after excavation and/or soil intrusive activities. Air sampling will be subject to the requirements of 35 IAC Part 811 and the ROD. Groundwater sampling and analysis protocols will be developed. The protocol will include initial sample collection from groundwater point of compliance wells and analysis of relevant parameters. Subsequent groundwater sampling will be performed and analyzed for the constituents identified from the initial sample analysis pursuant to 35 IAC Parts 620 and 811/814, related regulations, and the ROD. Leachate sampling protocols will be developed for the surface impoundment and leachate flows or seeps. Leachate sampling and analysis will be subject to 35 IAC Part 811 and the ROD.

6.4.2 Field Sampling and Analysis Plan

A FSAP will be established to ensure that sample collection and analytical activities during the pre-design and design phases are conducted in accordance with technically acceptable protocols and that the data generated will meet the established data quality objectives. The FSAP shall define in detail the sampling and data-gathering methods that will be used to obtain additional site data for this project. It will contain an evaluation explaining what additional data are required to adequately design the remediation activities. The FSAP shall include all the sections described in Section 7.2 of this SOW. It shall include project objectives and organization, functional activities, sampling objectives, proposed sample locations, sampling frequency, sampling and field analysis equipment and procedures, sample compositing (if conducted), and sample handling. The FSAP will reference the RD-QAPP for QA/QC protocols to be used to achieve the established data quality objectives. The data quality objectives shall reflect use of analytical methods for obtaining data of sufficient quality to meet NCP requirements. In addition, the FSAP will contain a laboratory quality assurance plan that addresses personal qualifications, sampling procedures, sample custody, analytical procedures, and data reduction, validation, and reporting. The FSAP shall contain a schedule stating when events will take place and when deliverables will be submitted.

6.4.3 Health & Safety Plan

The PRPs will develop a HSP on the basis of site conditions to protect both personnel involved in pre-design and design activities and people in the surrounding community. The Illinois EPA will review and comment, if necessary, on the HSP. A copy of the final HSP and all addenda to the HSP will be kept at the Site. The HSP will address all applicable regulatory requirements contained in 20 CFR 1910.120(i)(2)--Occupational Health and Safety Administration, Hazardous Waste Operations and Emergency Response, Interim Rule, December 19, 1986; U.S. EPA Order 1440.2--Health and Safety Requirements for Employees Engaged in Field Activities; U.S. EPA Order 1440.3--Respiratory Protection; U.S. EPA Occupational Health and Safety Manual; and U.S. EPA Interim Standard Operating Procedures (September 1982). The HSP shall include all the sections described in Section 7.3 of this SOW. The HSP will provide a Site background discussion and describe personnel responsibilities, protective equipment, health and safety procedures and protocols, decontamination procedures, personnel training, and type and extent of medical surveillance. The plan will identify problems or hazards that may be encountered and how these are to be addressed. Procedures for protecting third parties, such as visitors or the surrounding community, will also be provided. Standard operating procedures for ensuring worker safety will be referenced and not duplicated in the HSP.

Prior to preparing the specifications for the HSP, the data collected from previous studies and tasks will be evaluated. The objective of this effort will be to evaluate the level of detail and specific Site hazards that must be addressed in the HSP. Results from previous tasks that have an impact on Site safety considerations will be reviewed. Chemical data and field notes from prior sampling and subsurface investigations will also be evaluated. Physical and chemical hazards that may be encountered will be reviewed. The evaluation of potential exposure of local citizens to hazardous substance will be of paramount importance. The results of this analysis will be used to prepare the HSP.

6.4.4 Addenda to QAPP, FSAP, and HSP

Addenda may be prepared to supplement the remedial design QAPP FSAP, or HSP (Plans), as necessary. Each addendum will be prepared in a phased manner involving review and incorporation of Illinois EPA comments prior to implementation of any Plan addendum.

6.5 Task 5 - Pre-Design Field Work

The RD Contractor(s) shall conduct pre-mobilization activities, including the procurement of a laboratory for sample analyses as necessary. The RD Contractor(s) shall implement the Pre-Design Work Plan and demobilize, accordingly. The RD Contractor(s) shall conduct sampling and analyses to define the nature and extent of organic and inorganic contamination that exists at the Site as necessary to implement the RD. In addition, the RD Contractor(s) shall conduct any necessary treatability studies to determine the effectiveness of the proposed RD/RA process.

Pre-design investigation activities will follow the plans developed in Tasks 2 and 4. Strict chain-of-custody procedures will be followed and all sample locations will be identified on a Site map. The

RD Contractor(s) will provide management and QC review of all activities conducted under this task.

6.6 Task 6 - Sample Analysis/Validation

The RD Contractor(s) shall develop a data management system including field logs, sample management and tracking procedures, and document control and inventory procedures for both laboratory data and field measurements to ensure that the data collected during the RD investigation activities are of adequate quality and quantity to support the RD/RA. Collected data should be validated at the appropriate field or laboratory QC level to determine whether it is appropriate for its intended use. Task management and quality controls will be provided by the RD Contractor(s). The U.S. EPA Contract Lab Program ("CLP") should be considered for use as appropriate for analysis of field samples. The PRPs or RD Contractor(s) will have primary responsibility for ensuring that validation of all data is performed in accordance with the approved RD-QAPP for the Site. The RD Contractor(s) will incorporate information from this task into the RD/RA.

Data validation will be required for all data collected during an initial period of field investigation, as required by the RD-QAPP and FSAP. If there are no significant problems with data validation for this initial period, then Illinois EPA may allow a reduction in data validation down to no less than ten percent of the data collected during subsequent phases.

6.7 Task 7 - Data Evaluation

The RD Contractor(s) shall analyze all RD investigation data and present the results of the analyses in an organized and logical manner so that the relationship between the data and the RD for each medium is apparent. The RD Contractor(s) shall design and set up an appropriate database for pertinent information collected. The RD Contractor(s) shall evaluate, interpret, and tabulate data in an appropriate presentation format for final data tables. The RD Contractor(s) shall submit a Pre-Design Study Report at the conclusion of the Pre-Design Work, which summarizes the pre-design studies and the associated data and results.

6.8 Task 8 - Remedial Design

In accordance with the schedule specified in the CD, the RD Contractor(s) will submit the RD Work Plan ("RDWP") to the Illinois EPA for approval. The RDWP will describe the PRPs' plan for implementation of the RD within the terms and conditions of the CD, the ROD, and this SOW. As an option, the PRPs/RD Contractor(s) may prepare separate work plans for the RD and RA (construction) phases of the work. If separate work plans are prepared, the draft RAWP should be submitted at the pre-final design phase of the RD and finalized after selection of the RA Contractor(s).

6.8.1 Remedial Design Work Plan

The RD Contractor(s) shall prepare and submit to the Illinois EPA for approval an RDWP that shall document the overall management strategy for performing the RD, including tasks to be performed for meeting the requirements of this SOW. The RD Contractor(s) shall describe and document the responsibility and authority of all organizations and personnel involved with the implementation. The RD Contractor(s) shall develop an overall project schedule for implementation of the RD, which identifies timing, and specific dates for initiation and completion of all tasks. The RDWP and corresponding activity plans will be submitted to Illinois EPA, as specified in the CD or as agreed upon by the PRPs and Illinois EPA, for review and approval by the Illinois EPA.

The RDWP will contain at a minimum the following:

1. Site Description and Background;
2. Description of each task/deliverable;
3. Formation of the Design Team;
4. Requirements for surveying, mapping, or other additional field data collection;
5. A description of the design review process including a description of the content of each phased design submittal;
6. A schedule of completion of the design, including all required deliverables and design review meetings;
7. Items requiring clarification or anticipated problems;
8. Proposed personnel; and
9. Drawing register listing all drawings and specifications that will be prepared.

6.8.2 Remedial Design/Project Plans Review

RD is defined as those activities to be undertaken by the PRPs to develop the final drawings, specifications, general provisions, and special requirements necessary to translate the ROD into the remedy pursuant to this SOW and the CD. The final product of the RD is a technical package that contains, or addresses, all elements necessary to accomplish the RA including, in addition to technical elements, all design support activities, permitting and access requirements, and institutional controls.

Design Reviews

After approval of the RDWP by the Illinois EPA, the RD Contractor(s) will implement the RDWP in accordance with the RD schedule contained therein. Such implementation shall include Illinois EPA review and approval of plans, specifications, submittals, and other deliverables. The purpose of the design reviews is for the Illinois EPA to assess the feasibility of the design(s) to achieve the RA goals and performance standards. Illinois EPA approval of design submittals is administrative in nature to allow the RD Contractor(s) to proceed to the next step. It does not imply acceptance of later design submittals that were not included in previous submittals, or that the remedy, when constructed, will meet performance standards or function properly and be accepted.

All plans and specifications shall be submitted in accordance with the schedule set forth in the RDWP and shall be developed in accordance with U.S. EPA's Superfund RD and RA Guidance (OSWER Directive No. 9355.0-4A). All plans and specifications shall demonstrate that the RA will meet all objectives of the ROD and this SOW, including all Performance Standards. The PRPs and/or RD Contractor(s) shall regularly with the Illinois EPA to discuss design issues. Also, the RD Contractor(s) shall submit each design to the Illinois EPA for review and comment.

In general, the RD will be submitted for approval in the following phased approach:

1. Preliminary Design - The scope of the preliminary design will address not less than 30% of the total design and will be based on data furnished for this project;
2. Intermediate Design - The RD Contractor(s) will present an Intermediate Design Briefing when the design effort is approximately 60% complete;
3. Prefinal Design - The Design will be submitted at 95% completion; and
4. Final Design - After approval of the Prefinal Design the required revisions will be incorporated into the Design and the final documents submitted 100% complete with the reproducible drawings and specifications ready for bid advertisement.

Phases identified above are suggested RD submittals and do not preclude the use of accelerated submittal mechanisms (i.e., eliminating 95% Design review or eliminating part of the Preliminary and Intermediate Design) as mutually agreed to by the Illinois EPA. For example, access controls and infrastructure portions of the selected remedy may be submitted separately in the Prefinal Design form for the Illinois EPA review and comment or approval to expedite installation. The PRPs will adequately address Illinois EPA comments on design submittals prior to implementing the subsequent design phase submittal.

Seven hard copies of each design submittal will be supplied to the Illinois EPA for each major component of the design. For scheduling purposes, 45 days will be allocated for the Illinois EPA's review and comments in between each of the design phases. Undisputed Illinois EPA comments from the previous phase will be incorporated into the next design phase.

A. Preliminary Design

The RD Contractor(s) shall submit the Preliminary Design when the design effort is approximately 30% complete. The Preliminary Design submittal shall include or discuss, at a minimum, the following:

1. Preliminary plans, drawings, and sketches, including design calculations;
2. Results of treatability studies and additional field sampling;
3. Design assumptions and parameters, including design restrictions, process performance criteria, appropriate unit processes for the treatment train, and expected removal or treatment efficiencies for both the process and waste (concentration and volume);
4. Proposed cleanup verification methods, including compliance with ARARs;

5. Outline of required specifications;
6. Real estate, easement, and permit requirements; and
7. Preliminary construction schedule, including contracting strategy.

B. Intermediate Design

The RD Contractor(s) shall present an Intermediate Design Briefing when the design effort is approximately 60 % complete. The Intermediate Design Briefing shall fully address all comments made to the Preliminary design submittal. At the Intermediate Design Briefing, the RD Contractor(s) shall submit the following RA plans:

1. Draft Construction Quality Assurance (CQA) Plan;
2. Draft QAPP, as outlined in Section 6.8.4;
3. Draft FSAP, as outlined in Section 6.8.5;
4. Draft HSP, as outlined in Section 6.8.6; and
5. Draft Contingency Plan, as described in Section 7.6.

C. Prefinal and Final Designs

The RD Contractor(s) shall submit the Prefinal Design when the design effort is 95% complete and shall submit the Final Design when the design effort is 100% complete. The Prefinal Design shall fully address all comments made to the preceding design submittal. The Final Design shall fully address all comments made to the Prefinal Design and shall include reproducible drawings and specifications suitable for bid advertisement. The Prefinal Design shall serve as the Final Design if the State has no further comments and issues the notice to proceed.

The Prefinal and Final Design submittals shall include those elements listed for the Preliminary Design, as well as, the following:

1. Proposed siting/locations of processes/construction activity;
2. Outline of long-term monitoring plan;
3. Final Performance Standard Verification Plan;
4. Final Construction Quality Assurance Plan;
5. Final RA-QAPP/ HSP/FSAP/Contingency Plan;
6. Capital and O&M Cost Estimate. This cost estimate shall refine the FFS cost estimate to reflect the detail presented in the Final Design; and
7. Final Project Schedule for the construction and implementation of the RA that identifies timing for initiation and completion of all critical path tasks. The final project schedule submitted as part of the Final Design shall include specific dates for completion of the project and major milestones.

6.8.3 Quality Assurance Project Plan

An RA-QAPP will be developed by the RD Contractor(s) and approved by the Illinois EPA for inclusion in each of the bidding documents that will be prepared for each of the major components of the remedial program for the Site. The RA-QAPP will be prepared in a phased manner involving review and incorporation of the Illinois EPA comments. The RA-QAPP document will be an independent document specific for the project, and shall have the content described in Section 7.1 of this SOW.

The RD Contractor(s) shall prepare the RA-QAPP to address the types of investigations and monitoring to be conducted during the remedial action. The RA-QAPP should include a project description, a project organization chart illustrating the lines of responsibility of the personnel involved in the sampling phase of the project, quality assurance objectives for data such as the required precision and accuracy, completeness of data, representativeness of data, comparability of data, and the intended use of collected data, sample custody procedures during sample collection, in the laboratory, and as part of the final evidence files, the type and frequency of calibration procedures for field and laboratory instruments, internal quality control checks, and quality assurance performance audits and system audits, preventive maintenance procedures and schedule and corrective action procedures for field and laboratory instruments, specific procedures to assess data precision, representativeness, comparability, accuracy, and completeness of specific measurement parameters, and data documentation and tracking procedures. Standard operating procedures for QA/QC that have been established by U. S. EPA will be referenced and not duplicated in the RA-QAPP.

QA/QC protocols to be developed for each major component that will affect the RA-QAPP include air sampling before and during construction (both on and off-site) for landfill gas (methane), total VOCs, and particulates, and groundwater and leachate sampling and monitoring.

Air sampling for landfill gas emissions will begin during construction phases. The protocols will include gas (methane), total VOC, and particulate sampling before, during, and after excavation and/or soil intrusive activities, personnel sampling and monitoring of ambient health and safety monitoring and construction workers. Air sampling will be subject to 35 IAC Part 811 and the ROD.

Groundwater sampling and analysis protocols will be developed. The protocols will include initial sample collection from groundwater point of compliance wells and analysis for relevant parameters as discussed in the ROD. Subsequent groundwater sampling will be performed and analyzed for the constituents identified from the initial sample analysis pursuant to 35 IAC Parts 620 and 811/814, and related regulations and the ROD.

Leachate sampling and analysis protocols will be developed for the surface impoundment, and leachate flows or seeps, and for on-Site treatment for off-Site disposal. Leachate sampling and analysis will be subject to 35 IAC Part 811, related regulations and the ROD.

Sampling and analysis protocols for the landfill final cover system will be subject to 35 IAC Part 811, related regulations and the ROD.

For all types of sampling, the sample collection methods, analytical schemes, and frequency of testing will be developed and submitted for approval to the Illinois EPA.

6.8.4 Field Sampling and Analysis Plan

A FSAP will be established to ensure that sample collection and analytical activities during the remedial action are conducted in accordance with technically acceptable protocols and that the data generated will meet the established data quality objectives. The FSAP shall include a field sampling and analysis plan and a laboratory analysis plan which include protocols and the laboratory quality assurance plan. The FSAP shall define in detail the sampling and data-gathering methods that will be used to obtain additional site data for this project. It will contain an evaluation explaining what additional data are required. It shall include the project objectives and organization, functional activities, sampling objectives, proposed sample locations, sampling frequency, sampling and field analysis equipment and procedures, sample compositing (if conducted), and sample handling. The FSAP will reference the RA-QAPP for QA/QC protocols to be used to achieve the established data quality objectives. The data quality objectives shall reflect use of analytical methods for obtaining data of sufficient quality to meet NCP requirements. In addition, the FSAP will contain a laboratory quality assurance plan shall address personal qualifications, sampling procedures, sample custody, analytical procedures, and data reduction, validation, and reporting. The FSAP shall contain a schedule stating when events will take place and when deliverables will be submitted.

6.8.5 RA Health & Safety Plan

The PRPs will develop a HSP on the basis of Site conditions to protect both personnel involved in RA and people in the surrounding community. The Illinois EPA will review and comment, if necessary, on the HSP. A copy of the final HSP and all addenda to the HSP will be kept at the Site. The plan will address all applicable regulatory requirements contained in 20 CFR 1910.120(i)(2)--Occupational Health and Safety Administration, Hazardous Waste Operations and Emergency Response, Interim Rule, December 19, 1986; U.S. EPA Order 1440.2--Health and Safety Requirements for Employees Engaged in Field Activities; U.S. EPA Order 1440.3--Respiratory Protection; U.S. EPA Occupational Health and Safety Manual; and U.S. EPA Interim Standard Operating Procedures (September 1982). The HSP will provide a Site background discussion and describe personnel responsibilities, protective equipment, health and safety procedures and protocols, decontamination procedures, personnel training, and type and extent of medical surveillance. The plan will identify problems or hazards that may be encountered and how these are to be addressed. Procedures for protecting third parties, such as visitors or the surrounding community, will also be provided. Standard operating procedures for ensuring worker safety will be referenced and not duplicated in the HSP.

Prior to preparing the specifications for the remedial action HSP, the data collected from previous studies and tasks will be evaluated. The objective of this effort will be to evaluate the level of detail

and specific Site hazards that must be addressed in the remedial action HSP. Results from previous tasks that have an impact on Site safety considerations will be reviewed. Chemical data and field notes from the prior sampling and subsurface investigations will also be evaluated. Physical and chemical hazards that may be encountered will be reviewed. This will involve a "walk through" of the entire RA effort so that obvious safety hazards can be identified.

For each of the major components of the program an evaluation will be performed from a safety point of view that will include each applicable element of the following:

1. Landfill gas collection system construction;
2. Leachate collection system construction;
3. Leachate surface impoundment closure;
4. Cap and cover system construction;
5. Long-term maintenance; and
6. Long-term ground water monitoring well and gas probe installation.

The evaluation of potential exposure of local citizens to hazardous substance will be of paramount importance in "walking through" the program and evaluating various operation scenarios. The results of this analysis will be used to prepare the program HSP specifications.

The RA HSP will include individual responsibilities for implementation and compliance monitoring. The minimum requirements to be implemented are listed in Section 7.3, Content of Supporting Plans. The HSP specifications in Section 7.3 will present performance requirements, constraints, criteria, and requirements that each participating party, such as individual contractors, must address to be in compliance with the provisions set forth in the RA HSP.

6.8.6 Addenda to QAPP, FSAP, and HSP

The QAPP, FSAP, and HSP (Plans) will function as the initial Plans applicable to the RA. Each major component of the RA may, however, require varying specifics not addressed in the general Plans. Therefore, an addendum may be prepared for each of the major components of any Plan to supplement the initial Plan. Each addendum will be prepared in a phased manner involving review and incorporation of Illinois EPA comments prior to implementation of any Plan addendum.

6.9 Task 9- Engineering Services During Design and Construction

Engineering services will be provided by the PRPs on an ongoing basis as necessary. These services will include review, by their supervisory contractor, of construction contractors' submittals, serving as a representative on behalf of the PRPs for participation in relevant conference calls and meetings, project planning, and necessary field representation to oversee activities occurring at the project Site.

7.0 CONTENT OF SUPPORTING PLANS

The documents listed in this section -- the QAPP, the Contingency Plan, the HSP, the FSAP, the Construction Quality Assurance Plan, the O&M Plan, and the Performance Standard Verification Plan -- are documents which shall be prepared and submitted as outlined in this SOW. The following section describes the required contents of each of these supporting plans.

7.1 Quality Assurance Project Plan

The RD Contractor(s) shall develop a Site-specific QAPP, covering sample analysis and data handling for samples collected in all phases of future Site work, based upon guidance provided by U.S. EPA. The QAPP shall be consistent with the requirements of the U.S. EPA Contract Lab Program ("CLP") for laboratories proposed outside the CLP. Both the RD- and RA-QAPPs shall at a minimum include:

1. Project Description
 - a. Facility Location History
 - b. Past Data Collection Activity
 - c. Project Scope
 - d. Sample Network Design
 - e. Parameters to be Tested and Frequency
 - f. Project Schedule
2. Project Organization and Responsibility
3. Quality Assurance Objective for Measurement Data
 - a. Level of Quality Control Effort
 - b. Accuracy, Precision and Sensitivity of Analysis
 - c. Completeness, Representativeness and Comparability
4. Sampling Procedures
5. Sample Custody
 - a. Field Specific Custody Procedures
 - b. Laboratory Chain of Custody Procedures
6. Calibration Procedures and Frequency
 - a. Field Instruments/Equipment
 - b. Laboratory Instruments
7. Analytical Procedures
 - a. Non-Contract Laboratory Program Analytical Methods
 - b. Field Screening and Analytical Protocol
 - c. Laboratory Procedures

8. Internal Quality Control Checks
 - a. Field Measurements
 - b. Laboratory Analysis
9. Data Reduction, Validation, and Reporting
 - a. Data Reduction
 - b. Data Validation
 - c. Data Reporting
10. Performance and System Audits
 - a. Internal Audits of Field Activity
 - b. Internal Laboratory Audit
 - c. External Field Audit
 - d. External Laboratory Audit
11. Preventive Maintenance
 - a. Routine Preventative Maintenance Procedures and Schedules
 - b. Field Instruments/Equipment
 - c. Laboratory Instruments
12. Specific Routine Procedures to Assess Data Precision, Accuracy, and Completeness
 - a. Field Measurement Data
 - b. Laboratory Data
13. Corrective Action
 - a. Sample Collection/Field Measurement
 - b. Laboratory Analysis
14. Quality Assurance Reports to Management

7.2 Field Sampling and Analysis Plan

The RD Contractor(s) shall develop a FSAP (as described in "Guidance for Conducting Remedial Investigations and Feasibility Studies Under CERCLA," October 1988, the Site RI/FS, and any updated guidance directives). The RD and RA FSAPs should supplement the respective QAPPs and address all sample collection activities.

7.3 Health and Safety Plan

The RD Contractor(s) shall prepare and submit a HSP to address the studies and activities to be performed at the Site to implement the RD/RA. The HSP is designed to protect on-Site personnel and area residents from physical, chemical and all other hazards or potential hazards posed by the RA. The HSP shall develop the performance levels and criteria necessary to address the following areas. The HSP shall follow U.S. EPA guidance and all OSHA requirements as outlined in 29 CFR 1910.

1. General requirements
2. Personnel
3. Levels of protection
4. Safe work practices and safeguards
5. Medical surveillance
6. Personal and environmental air monitoring
7. Personal protective equipment
8. Personal hygiene
9. Decontamination - personal and equipment
10. Site work zones
11. Contaminant control
12. Contingency and emergency planning
13. Logs, reports and record keeping

7.4 Construction Quality Assurance Plan

The RD Contractor(s) shall submit a Construction Quality Assurance Project Plan ("CQAP") that describes the Site-specific components of the quality assurance program that shall ensure that the completed project meets or exceeds all design criteria, plans, and specifications. The draft CQAP shall be submitted with the Prefinal Design and the final CQAP shall be submitted with the final design. The CQAP shall contain, at a minimum, the following elements:

1. Responsibilities and authorities of all organizations and key personnel involved in the design and construction of the RA;
2. Required qualifications of the Quality Assurance Official in terms of training and experience necessary to fulfill the identified responsibilities;
3. Protocols for sampling and testing used to monitor construction;
4. Identification of proposed quality assurance sampling activities including the sample size, frequency of testing, acceptance and rejection data sheets, problem identification and corrective measures reports, evaluation reports, acceptance reports, and final documentation. A description of the provisions for final storage of all records shall be included; and
5. Reporting requirements for CQA activities shall be described in detail in the CQAP. This shall include such items as daily summary reports, inspection data sheets, problem identification and corrective measures reports, design acceptance reports,

and final documentation. Provisions for the final storage of all records shall be presented in the CQAP.

7.5 Operation and Maintenance Plan

The RD Contractor(s) shall prepare an O&M Plan to cover both implementation and long-term maintenance of the RA. An outline of the O&M Plan shall be submitted as a final Design Document submission. The final O&M Plan shall be submitted to Illinois EPA prior to the pre-final construction inspection, in accordance with the approved construction schedule. The O&M Plan shall be composed of the following elements:

1. Description of normal operation and maintenance:
 - a. Description of tasks for operation;
 - b. Description of tasks for maintenance;
 - c. Description of prescribed treatment or operation conditions; and
 - d. Schedule showing frequency of each O&M task.
2. Description of potential operating problems:
 - a. Description and analysis of potential operating problems;
 - b. Sources of information regarding problems; and
 - c. Common and/or anticipated remedies.
3. Description of routine monitoring and laboratory testing:
 - a. Description of monitoring tasks;
 - b. Description of required data collection, laboratory tests and their interpretation;
 - c. Required quality assurance, and quality control;
 - d. Schedule of monitoring frequency and procedures for a petition to Illinois EPA to reduce the frequency of or discontinue monitoring; and
 - e. Description of verification sampling procedures if Cleanup or Performance Standards are exceeded in routine monitoring.
4. Description of alternate O&M:
 - a. Should systems fail, alternate procedures to prevent releases or threatened releases of hazardous substances, pollutants or contaminants which may endanger public health and the environment or exceed performance standards; and
 - b. Analysis of vulnerability and additional resource requirement should a failure occur.
5. Corrective Action:
 - a. Description of corrective action to be implemented in the event that cleanup or performance standards are exceeded; and
 - b. Schedule for implementing these corrective actions.

6. Safety plan:
 - a. Description of precautions, of necessary equipment, etc., for Site personnel; and
 - b. Safety tasks required in event of systems failure.
7. Description of equipment:
 - a. Equipment identification;
 - b. Installation of monitoring components;
 - c. Maintenance of Site equipment; and
 - d. Replacement schedule for equipment and installed components.
8. Records and reporting mechanisms required:
 - a. Daily operating logs;
 - b. Laboratory records;
 - c. Records for operating costs;
 - d. Mechanism for reporting emergencies;
 - e. Personnel and maintenance records; and
 - f. Monthly/annual reports to State agencies.

7.6 Contingency Plan

The RD Contractor(s) shall prepare a Contingency Plan describing procedures to be used in the event of an accident or emergency at the Site. The Contingency Plan may be part of the HSP or a separate document. The Contingency Plan shall include at a minimum the following:

1. Name of the person or entity responsible for responding in the event of an emergency incident;
2. Plan and date(s) for meeting(s) with the local community, including local, State and Federal agencies involved in the RA, as well as local emergency squads and hospitals;
3. First aid medical information; and
4. Spill Prevention, Control, and Countermeasures ("SPCC") Plan (if applicable), as specified in 40 CFR Part 109 describing measures to prevent and contingency plans for potential spills and discharges from materials handling and transportation.

7.7 Performance Standard Verification Plan

The RD Contractor(s) shall prepare a Performance Standard Verification Plan describing: (i) how the performance standards included in the ROD are achieved by the RD; and (ii) the means by which these standards will be measured and verified following the RA.

Installation and Operation of Monitoring Program for Remedial Action

The RA Contractor(s) shall implement monitoring programs to evaluate and ensure that the

construction and implementation of the RA comply with approved plan and design documents and performance standards. RA Contractor(s) shall submit monitoring programs as part of the RDWP, which shall address the specific components of the RA. Each sample shall be analyzed for a list of parameters approved by the Illinois EPA.

Groundwater Monitoring

The RA Contractor(s) shall implement a groundwater monitoring program as identified in the RDWP or as required by the Illinois EPA. The RA Contractor(s) shall design a groundwater monitoring program to detect changes in the chemical concentration of the groundwater under and adjacent to the Site.

Air

At all times during the performance of the RA, the RA Contractor(s) shall ensure that air emissions do not exceed a cumulative cancer risk at the nearest downwind residence, using risk calculations methods set for the Risk Assessment Guidance for Superfund. In addition, the air emission shall not exceed any ARARs. If air emissions exceed these levels, Settling Defendants/PRPs' Contractors shall take corrective measures as developed in the Contingency/Design Plans. Residuals from air emissions and landfill gas control processes shall be treated and/or disposed of pursuant to ARARs.

Landfill Gas in Soils and Groundwater

The requirements of this part follow the requirements stated above for Air and include the movement of landfill gases (e.g., VOCs, methane) through soils and groundwater. Landfill gas emissions shall not exceed specific hazardous risk levels (chemical, explosive, and oxygen displacement) pursuant to ARARs.

Points of Compliance

In order to monitor and evaluate the RA throughout the Site, certain locations at which there are groundwater monitoring wells shall be selected as points of compliance, pursuant to the ROD, CD, SOW, and ARARs. Wells designated as representing the Points of Compliance, and which shall be sampled will be identified in the Pre-Design/Design Work Plan. The monitoring wells will be grouped into wells for detection monitoring and wells for compliance monitoring. If any of the wells are destroyed, damaged, or in any way becomes unusable, the Settling Defendants/PRPs' Contractors shall repair or replace each well. Additional wells may be included during the development of the RDWP, RAWP, and the O&M Plan. The location of any additional wells installed pursuant to the CD or the SOW shall be approved by the Illinois EPA. Points of Compliance for the monitoring and evaluation of the landfill gas extraction and flaring shall be addressed in the O&M Plan.

8.0 REMEDIAL ACTION TASKS TO BE PERFORMED

The RA activities shall consist of the following tasks:

- Task 1 - Contractor Procurement (PRP Activity)
- Task 2 - Community Relations
- Task 3 - Preconstruction Conference
- Task 4 - RA Construction and Related Activities
- Task 5 - Oversight of Construction Activities
- Task 6 - Prefinal Construction Conference and Prefinal Inspection
- Task 7 - Preliminary/Interim Closeout Report Assistance
- Task 8 - Final Inspection
- Task 9 - Project Closeout

8.1 Task 1 - Contractor Procurement (PRP Activity)

The PRPs shall complete the necessary steps and follow the appropriate procedures to procure the services of RA Contractor(s) to conduct the RA for the Site. The PRPs shall direct the RA Contractor(s) to begin planning to implement the specific activities that will need to be conducted as part of the RA.

8.2 Task 2 - Community Relations

The Illinois EPA will be primarily responsible for community relations activities at the Site. The community relations program will be integrated closely with all remedial response activities to ensure community understanding of the RA to take place and to obtain community input on the progress of the RA. Community relations activities for the Site may include the following:

1. Maintenance of a community information repository, which houses a copy of the administrative record;
2. Preparation and dissemination of news releases, fact sheets, slide shows, exhibits and other audio-visual materials designed to apprise the community on the progress of the RA;
3. Upkeep of a mailing list that includes nearby and interested residents, public interest groups and elected officials; and
4. Arrangement of briefings, press conferences, workshops and public and other informal meetings.

Deliverables and the schedule for submittals will be identified in the CRP.

8.3 Task 3 - Preconstruction Conference

After selecting the RA Contractor(s) for RA components and before implementation, the Illinois EPA shall conduct with the RA Contractor(s) a preconstruction inspection and meeting to:

1. Review methods for documenting and reporting inspection data;
2. Review methods for distributing and storing documents and reports;
3. Review work area security and safety protocol;